DOCUMENT RESUME

ED 199 605 CG 015 026

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TITLE Memory Processes and the Integration of Attitudinal and Behavioral Information.
PUB DATE Sep 80
NOTE 30p.; Paper presented at the Annual Convention of the American Psychological Association (88th, Montreal, Quebec, Canada, September 1-5, 1980).

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Attitudes; *Behavior; *Cognitive Processes; Cognitive Style; Concept Formation; Congruence (Psychology); Individual Characteristics; *Information Processing; *Memory; Observation; Perception; Personality Traits; Psychological Patterns; *Recognition (Psychology)

ABSTRACT

Many scientists are currently studying the manner in which individuals process social information. The reconstruction of attitudinal and subsequent behavioral information was studied to determine whether information about a person's schema can influence the interpretation of that person's subsequent behavior or whether the behavior itself is more salient to an observer than the context in which it occurs. In two sessions two weeks apart, undergraduates (N=160) read a series of attitude statements purportedly made by a target person, and an essay purportedly written by that person. Subjects then completed a recognition test for the attitude stimuli and essay argument. Results indicated that attitude statements which were consistent with a given schema were more apt to be remembered than were attitude statements which were inconsistent with that schema. The essay content influenced memory for the attitude information; however, memory for the essay content was not influenced by the writer's prior attitude statements. These findings appear to provide evidence for the effect of schematic processes on memory for attitudinal stimuli. Additionally, information contained in subsequent behavior(s) may influence memory for schema content. (Author/NRB)

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MEMORY PROCESSES AND THE INTEGRATION OF ATTITUDINAL AND BEHAVIORAL INFORMATION

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A Paper Presented
at the
1980 Meeting of the
American Psychological Association
Montreal, Quebec, Canada

CG 015026

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INTRODUCTION

A number of scientists are currently studying the manner in which people process social information (cf. Carroll & Payne, 1976; Harvey, Ickes, & Kidd, 1976, 1978; Ross, 1977; Wyer, 1974). In the past the study of memory processes in the perception, comprehension, and later reconstruction of information has tended to be the domain of experimental psychologists alone (cf. Anderson, 1975; Estes, 1975; Massaro, 1975; Neisser, 1976; Norman & Rumelhart, 1975). However, as Simon (1976) so aptly puts it, cognitive social psychology is cognitive psychology and cognitive psychology is cognitive social psychology. The integration of these two areas will presumably give scientists an opportunity to consider old problems from new perspectives. Already, techniques such as verbal protocols, chronometric measurement, and monitoring of information search have been suggested as potentially useful tools for those attempting to merge these two fields of inquiry (Carroll, Payne, Frieze, & Girard, 1976).

Wyer (1979) has recently summarized a number of rapid developments which have taken place in the area of social cognition as exemplified by the emergence of numerous articles and books over the course of the past year. Social psychologists and cognitive psychologists each have the capacity to make a substantial contribution in this area while simultaneously learning a great deal from one another. Experimental psychologists have much to offer in the way of methodological sophistication as well as providing a firm conceptual understanding of certain basic cognitive processes. On the other hand, social psychologists are currently studying how a number of different types of stimuli

are processed. For example, personality traits, physical characteristics, behavioral events, environmental settings, and attitudes constitute just a few stimulus domains that appear to be worthy of attention.

Taylor (1976) advises that scientists pay close attention to the role of cognitive processes when people are asked to make inferences or form judgments about others on the basis of limited information. Such an approach is not unprecedented. As Walter Lippmann (1922) once said, "We do not so much see this man and that sunset; rather we notice that the thing is a man or a sunset, and then see chiefly what our mind is already full of on those subjects" (p. 88). Whatever classification scheme they choose to adopt, individuals commonly find themselves in situations where they must integrate diverse types and often large quantities of information and subsequently make an interpretation or arrive at some type of judgment based upon their understanding of that information. It is clear that cognitive dynamics play an important role in the processing of social information and that an individual's cognitive framework or available knowledge structures can influence the construction of his or her social world. These structures have typically been referred to be cognitive psychologists as schemas, schemata, rules, or scripts.

Schematic Representations and Information Processing

A number of experimental psychologists have studied the role of schematic processes in the perception, comprehension, and later reconstruction of information. The content of that information has varied from one study to another.

Rumelhart (1977) concludes that comprehension occurs when an appropriate schema is accessed in memory to account for the new material. Furthermore, once this information is associated with a given schema, the individual may make certain inferences which go beyond the information itself. Bransford and Johnson (1973) believe that comprehension is related to the types of knowledge structures which are utilized in the processing of information. In fact, the same information may have very different meanings for two individuals depending on their prior experiences.

Bransford and Franks (1971) have discovered that a series of individual sentences may lose their unique status in memory in lieu of a more wholistic representation. They have found that individuals will sometimes mistakenly believe that they have seen a particular sentence when in fact it is simply made up of component sentences that have previously been seen. In a series of related investigations, Bransford and Johnson (1973) have demonstrated that information may undergo a change in meaning when new material is made available. For example, the same story may be remembered very differently depending on the title that is later attached to it. Similarly, Miller and Loftus (1976) used leading questions to induce individuals to reconstruct a series of events in such a way that their recollection deviated from the information that was actually provided. Investigations such as these indicate the importance of contextual factors in both the construction and reconstruction of information.

Posner and Keele (1968) have found that memory is poorer for information discrepant from an overall schema and that a prototypic pattern not previously seen tends to be misidentified

as having been a part of the original information made available. They agree that the commonalities inherent in a pattern of information appear to be abstracted and stored. However, these authors argue that probably more is stored than simply an abstracted prototype. Rather both the central tendency and the overall variability of the pattern seem to be learned.

Reitman and Bower (1973) have concerned themselves with the processes underlying the abstraction of a schema and the subsequent retention of exemplar information. Their results indicate that a schema which is reflective of an overall pattern of information is stored as well as a number of representative exemplars. They found recognition scores to be higher for old information that fit into a given schema relative to scores for new information which also fit into the schema but which had not been previously seen. They concluded that subjects were abstracting a schema but that they were also demonstrating memory for specific content.

The above research demonstrates the function of schemas and prototypes as they relate to memory processes and the comprehension of new material. It has been conducted primarily by cognitive psychologists. However, the impact of prior knowledge structures on the processing of information has not gone unnoticed by social psychologists. Rather, the issues addressed have tended to be broad in scope and therefore research in this area has perhaps been somewhat less systematic than that of cognitive psychologists.

Knowledge Structures and the Processing of Social Information

Mark Snyder has conducted a series of investigations which demonstrate both the construction and reconstruction of social information. He has discovered that new information can affect the reconstruction of past events (Snyder & Uranowitz, 1978).

Furthermore, he has demonstrated that expectations about others can be experimentally induced and that these expectations can affect an individual's own behaviors which in turn can influence others to behave in such a way so as to affirm these expectations (Snyder, Tanke, & Berscheid, 1977). Thus individuals may literally create their own reality as a function of their expectations.

A number of social psychologists have recently been focusing on the relationship between information processing and later recall. For example, Picek, Sherman, and Shiffrin (1975) have shown that in general a balanced social structure is recalled more easily than an imbalanced one. However, Sentis and Burnstein (1977) argue that a balance schema can delay the recall of individual components since it must first be decomposed. They do agree, though, that information which can be easily integrated into a balance schema should be more easily remembered. Baer and Hodun (1975) have demonstrated that information which affirms a broader rule tends to be recalled more accurately than contradictory information. Moreover, contradictory information tends to be misrecalled as having been confirmatory in nature more often than is confirmatory information misrecalled as having been contradictory. Tsujimoto (1978) created a schema out of a linear ordering of relationships and discovered that recognition scores for a given relationship were a positive function of the relationship's similarity to the overall schema. In fact, some new relationships which had not been previously seen but which were consistent with the linear ordering actually received higher recognition scores than some schema-consistent relationships which had been seen previously. Cantor and Mischel (1977a, 1977b) presented subjects with certain sets of traits indicative of a

prototypic personality type. They discovered that subjects were more confident that they had previously seen nonpresented material when it was related to the prototype rather than simply irrelevant.

Zadny and Gerard (1974) have obtained results which indicate that a person's expectations about the behavior of another may cause greater attention to be given to those behaviors which are relevant to such expectations. Furthermore, those behaviors receiving the initial attention are more apt to be remembered later. Rothbart, Evans, and Fulero (1979) have discovered that behavioral instances which confirm prior expectancies receive higher recognition scores than unrelated information. The authors note that by way of selective attention individuals may perpetuate initial impressions of others.

Crocker and Taylor (1978) are of the opinion that an individual's cognitive framework can affect both the processing of information and the selection of information for processing. Once individuals have formed or been given hypotheses about the likelihood of a given series of events, they will search for hypothesis-confirming evidence. If they have no prior hypothesis, they will utilize an available schema when interpreting what information is available.

Purpose of Our Experiment

The goal of the present study was to reconceptualize the typical attitude attribution paradigm by incorporating methods and concepts from the previous work of cognitive psychologists. Observers are typically asked to infer an attitudinal disposition of an actor on the basis of a given behavior, such as the writing of an essay. Presumably, observers reflect on the content of such a behavior when they are later asked to make an attribution.

However, the attribution by itself does not indicate to what degree the behavioral information can affect the durability of the prior conception. For example, consider the situation where a communication of an actor is somewhat unexpected. It is not clear whether the information contained in the communication and any prior knowledge of the observer about the actor are integrated in some manner after receiving the communication or whether such prior knowledge actually exerts an influence on the comprehension of the information contained in the communication. The latter possibility can be tested by asking the observer to recall the content of the communication. This type of procedure makes it possible to study both the construction and the integration of attitudinal information. Furthermore, it is possible to determine how such information is later reconstructed.

Bransford and Johnson (1973), among others, have demonstrated that a prior context can affect the processing of new information. They have also demonstrated that new information can affect the reconstruction of prior information. Croxton (1976) discovered that perceivers who believed a target person generally held beliefs similar to their own subsequently rated an essay written by that person as more similar to their own viewpoints than did perceivers who were led to believe that the target person held generally dissimilar beliefs. This difference occurred even though the perceivers were given the same essay to read. Unfortunately, no measures were taken to assess possible differences in memory for essay content. Jones, Worchel, Goethals, and Grumet (1971) found that essays which were consistent with expectations were perceived as more extreme than essays that were unexpected. Once again, however, no specific measures of recall for essay

content were collected.

The present experiment was designed to determine whether the information of a schema about a given person can influence the interpretation of a subsequent behavior performed by that same person. On the other hand, Heider (1958) has stated that a behavior of an actor tends to "engulf the field," meaning that the behavior itself is more salient to an observer than the context in which it occurs. Therefore, the likelihood that a behavior can, poetically speaking, "engulf the schema", will also be assessed in this experiment by asking perceivers to reconstruct a schema for a given person after having processed behavioral information which has been supplied by that person.

Behavioral information may not always be consistent with a previously held impression. The primary purpose of the second experiment was to vary the consistency between an attitudinal schema for a given person and the subsequent behavior performed by that person and to also vary the diagnosticity of that behavior. Its goal was to determine the relationship between schema formation, behavioral interpretation, and schema change, and to investigate the potential interaction between the comprehension of new information and the reconstruction of old information.

Hypotheses

Schema-guided Memory for Individual Exemplars. Given that a schema for an individual is formed on the basis of the types of attitude statements made by that person, the likelihood that any one particular statement will be perceived as having contributed initially to the formation of the schema should be a function of that item's similarity to the schema. Statements which are consistent with the schema, though never made by the individual,

should be more likely to be identified as having contributed initially to the formation to the schema than inconsistent statements which also were never made by the individual. Operationally, schema-consistent statements should generally receive higher recognition scores than schema-inconsistent statements. A higher recognition score indicates greater confidence that a given statement was made by that person.

Schema-guided Memory for a Defining Characteristic. If it is true that a pattern of attitude statements can contribute to the formation of a schema, a statement which explicitly defines such a schema may be particularly susceptible to a memory bias. This prediction relates to the work of Bransford and Franks (1971) on the recall of verbal material. These investigators found that individuals tend to mistakenly identify a new sentence as having been seen previously when it is simply made up of component sentences which have been presented earlier. A summary statement which defines a particular attitude schema may be mistakenly identified in a similar manner since the individual attitude statements are consistent with such a generalization.

Behavioral Implication and Schema-guided Memory for Individual Exemplars. The impact of a behavior on a given attitude schema should be reflected in the recognition scores for individual exemplars. If the behavior is consistent with the schema, the recognition scores for statements consistent with that schema should increase, regardless of whether or not such statements actually contributed initially to the formation of that schema. Since the behavior substantiates the schema, it should be easier to activate the schema and therefore result in higher recognition scores for statements of this type. On the other hand, if the

behavior is inconsistent with the schema, the recognition scores for statements consistent with that schema should decrease. Since the behavioral information conflicts with the schema, the schema may become less salient and hence less likely to influence memory for the individual exemplars. The behavioral effects should be weakened, however, when the behavior has been constrained in some manner since any inconsistency between schema and behavior can be explained by the actor's lack of freedom. The discounting of the behavior should make it unlikely that the effect of the schema would be diminished.

Behavioral Implication and Schema-guided Memory for a Defining Characteristic. The degree of consistency between the attitude schema and the subsequent behavior should affect recognition scores for the statement which defines that schema. If the behavior is consistent with the schema, a perceiver should be more likely to mistakenly attribute such a statement to the actor. If the behavior is inconsistent, the perceiver should be less likely to make such an attribution. Again, however, the effect of the behavior should be diminished when it does not necessarily imply any underlying disposition.

Behavioral Implication and Behavioral Reconstruction. Just as the nature of a given attitude schema may influence memory for individual statements which both did and did not contribute to the formation of that schema, so may the implications of a given behavior influence memory for the specific components of that behavior. For example, in a written communication or an essay, an individual may present arguments on both sides of the issue before arriving at a conclusion. Once perceivers are made aware of the writer's position on the issue,

they may use this knowledge to guide their memory for the specific content of the communication. Those statements which are consistent with the writer's final position should be better remembered than those statements which are inconsistent. Moreover, arguments which are not actually contained in the communication but which are consistent with the final position taken should receive higher recognition scores than inconsistent arguments which are not contained in the communication. In other words, once the theme of the communication has been established, it should guide recall for the particulars of that communication.

Attitude Schemas and Behavioral Reconstruction. A schema for a given person may influence the reconstruction of a subsequent behavior by that person if the behavior is at all ambiguous. Those aspects of the behavior which are consistent with the schema should be more likely to later be recognized than those aspects of that behavior which are inconsistent. Specifically, if the source of a communication presents arguments on both sides of an issue prior to taking a position, those arguments which are consistent with the previous attitude schema describing that person should receive higher recognition scores than those arguments which are inconsistent. Moreover, perceivers should be more likely to incorrectly believe that a new argument was contained in the communication when that argument is consistent with the prior schema rather than inconsistent with it.

METHOD

Subjects. One hundred and sixty participants, 82 males and 78 females, from the subject pool of the Psychology Department at Miami University, volunteered for the study. Each participant

was randomly assigned to 1 or 8 experimental conditions. Two to eight individuals participated in a single session. Each participant was scheduled for two sessions, approximately two weeks apart.

Procedure.

Session I. Subjects were told that they would be participating in an experiment on impression formation and that they should form an impression of an individual on the basis of that person's attitudes. They were informed that they would be viewing a series of attitude statements displayed on slides, only some of which were endorsed by the target person.

Sixty-two slides, each containing an attitude statement, were randomly displayed on a white screen for approximately three seconds by a Kodak Ektographic RA-960 Random Access Projector. The 160 experimental subjects were randomly divided into two groups. One group was informed that of the 62 possible statements the target person endorsed ten liberal statements and ten irrelevant statements. The other group was informed that the target person endorsed ten conservative statements and the same ten irrelevant statements made by the Liberal target person. Included among the remaining statements were various liberal and conservative statements which were not endorsed by either target person. The statements, "I favor the Liberal point of view on most issues", and "I favor the Conservative point of view on most issues", were also included in the set but were not endorsed by either person.

All subjects were then given an essay to read which had purportedly been written by the target person. Half of the subjects were given a generally pro-marijuana essay to read and half were

given a generally anti-marijuana essay. Furthermore, half of the subjects were told that the target person had freely chosen the position taken in the essay and half were told that the target person had been assigned the position taken. The Pro-Marijuana essay was written to contain seven arguments in favor of legalization and three arguments opposed to it. The Anti-Marijuana essay was written to contain seven arguments opposed to the legalization of marijuana and three arguments in favor of it. The Pro-Marijuana essay concluded with a statement endorsing the legalization of marijuana, while the Anti-Marijuana essay concluded with a statement opposing the legalization of marijuana.

After reading the essay, subjects were given a questionnaire consisting of a self-descriptive 20-item adjective checklist. The purpose of this intervening task was to interfere with subjects' short-term memory. The selection of this type of task was based on the assumption that it would attract the subjects' attention yet be independent of the stimulus materials previously displayed.

Subjects were then given a recognition test for the attitude stimuli. The sixty-two statements were once more displayed on the screen. Subjects were instructed to indicate YES if they believed that the target person had endorsed the statement appearing on the screen and to indicate NO if they did not believe that the target person had made such a statement. They were instructed to indicate their confidence in their answer on a 1 (extremely uncertain) to 5 (extremely certain) scale.

A series of 18 slides was then randomly displayed, each slide containing an argument either in favor of or opposed to the legalization of marijuana. Some of these arguments had

appeared in only the pro-marijuana essay, some had appeared in only the anti-marijuana essay, and some arguments had appeared in both essays. Still other arguments had appeared in neither essay. Participants were instructed to respond YES if they believed that the argument appearing on the screen was contained in the essay which they had just read and NO if they did not believe that the argument was contained in the essay. Subjects also indicated their confidence in their answers.

Session II. All participants returned approximately two weeks later for the second session. The entire series of 62 slides was displayed once more and subjects were given the same recognition test as in the 1st session. The series of 18 slides containing the pro- and anti-marijuana arguments was also displayed once more.

The data collected during each session were analyzed as a 2 (target person description: liberal or conservative) X 2 (essay direction: pro- or anti-marijuana) X 2 (essay constraint: free choice or assigned) complete factorial design.

RESULTS

Recognition scores for the attitude statements could range from 1 (extremely certain that the target person did not make the statement) to 10 (extremely certain that the target person did make the statement). Similarly, recognition scores for the essay arguments could range from 1 (extremely certain that the argument was not contained in the essay) to 10 (extremely certain that the argument was contained in the essay).

Schema-guided Memory for Individual Exemplars and a Defining Characteristic. The effect of schema direction on recognition for each of the item types was in the predicted direction. During

both sessions, recognition scores for those liberal statements previously unsaid by either type of target person were higher when subjects were given a liberal attitude schema rather than a conservative attitude schema (Time 1: $F = 68.18$, $df = 1/159$, $p < .01$; Time 2: $F = 119.04$, $df = 1/159$, $p < .01$). Also, recognition scores for the statement defining the liberal attitude schema ("I favor the Liberal point of view on most issues") were significantly higher when subjects were given the liberal attitude schema rather than the conservative schema (Time 1: $F = 20.49$, $df = 1/159$, $p < .01$; Time 2: $F = 30.74$, $df = 1/159$, $p < .01$). On the other hand, recognition scores for those conservative statements previously unsaid by either type of target person were higher when subjects were given a conservative attitude schema rather than a liberal attitude schema (Time 1: $F = 22.83$, $df = 1/159$, $p < .01$; Time 2: $F = 30.25$, $df = 1/159$, $p < .01$). Furthermore, recognition scores for the statement defining the conservative attitude schema ("I favor the Conservative point of view on most issues") were significantly higher when subjects were given the conservative attitude schema rather than the liberal schema (Time 1: $F = 10.00$, $df = 1/159$, $p < .01$; Time 2: $F = 9.06$, $df = 1/159$, $p < .01$). These results are displayed in Table 1. They provide strong evidence that attitude statements which are consistent with a given attitude schema tend to be assimilated into that schema even though they did not contribute to its initial formation.

Behavioral Implication and Schema-guided Memory for Individual Exemplars. The effect of essay direction on recognition scores for the attitude stimuli was measured separately for the liberal and conservative attitude schemas respectively. Those statements whose recognition scores were significantly affected

by the essay direction are contained in Table 2. At Time 1, recognition scores for those liberal attitude statements previously unsaid by either type of target person were higher when the formation of the attitude schema was followed by the reading of a pro- rather than an anti-marijuana essay ($F = 5.35$, $df = 1/159$, $p < .05$). This difference was maintained at Time 2 ($F = 6.56$, $df = 1/159$, $p < .05$). Furthermore, at Time 2, within the liberal attitude schema condition, recognition scores for the liberal statements actually made by that person were higher when the person also purportedly wrote a pro-marijuana rather than an anti-marijuana essay ($F = 6.36$, $df = 1/79$, $p < .05$).

These results provide at least partial evidence for the influence of behavioral information on the schema-guided memory for attitudinal stimuli. However, the choice-assigned manipulation did not mediate this effect. In those cases where the behavior appears to have influenced the strength of the schema, it appears to have done so regardless of its diagnosticity. Furthermore, the results are somewhat equivocal since the effect of essay direction was limited only to statements which were consistent with a liberal attitude schema.

Behavioral Implication and Behavioral Reconstruction. During the first session, recognition scores for pro-marijuana arguments not included in either essay were higher when the essay was generally pro- rather than anti-marijuana ($F = 42.67$, $df = 1/159$, $p < .01$). Conversely, recognition scores for anti-marijuana arguments not included in either essay were higher when the essay was generally anti- rather than pro-marijuana ($F = 6.46$, $df = 1/159$, $p < .01$). These results support the notion that the overall theme of a communication can influence memory for the particulars of

that communication. The results of the second session provide an even stronger demonstration of this effect. As in the first session, recognition scores for pro-marijuana arguments not included in either essay were higher when the essay was generally pro- rather thananti-marijuana ($F = 38.45$, $df = 1/159$, $p < .01$). Also, recognition scores for anti-marijuana arguments not included in either essay were once again higher when the essay was generally anti- rather than pro-marijuana ($F = 27.33$, $df = 1/159$, $p < .01$). In addition, recognition scores for pro-marijuana arguments included in <u>both</u> essays were higher when the essay was generally pro- rather than anti-marijuana ($F = 15.83$, $df = 1/159$, $p < .01$) while recognition scores for anti-marijuana arguments included in <u>both</u> essays were higher when the essay was generally anti- rather than pro-marijuana ($F = 18.24$, $df = 1/159$, $p < .01$). These differences are displayed in Table 3.

As predicted, recognition for both old and new essay arguments was affected by the overall position taken in the essay. Furthermore, the effect of essay direction on memory for particular arguments appears to have become more pronounced over time. During the first session, only recognition for new essay arguments was differentially affected by the overall essay direction. However, two weeks later, recognition for all types of essay arguments was influenced by the direction taken in the essay. Yet the diagnosticity of the essay, in other words, the choice/assigned manipulation, had no effect on the later memory for essay content.

<u>Attitude Schemas and Behavioral Reconstruction</u>. The analysis of recognition scores for essay arguments as a function of schema direction was not significant, thus indicating that the attitude schema provided for perceivers about the target

person in no way influenced their reconstruction of the subsequent behavior performed by that person. Therefore, the processing and later recollection of the information contained in the essays does not appear to have been affected by the schema formed from the prior attitude statements of the essay writer.

DISCUSSION

Based on our results, we are able to conclude that attitude statements which are consistent with a given schema are more apt to be remembered as having been previously said than are attitude statements which are inconsistent with that schema. These findings appear to provide strong evidence for the effect of schematic processes on memory for attitudinal stimuli. There are, however, two alternative explanations which must be considered. First, the differences in recognition scores may reflect only a learning phenomenon rather than any effect of schematic processing. One alternative procedure to insure equality of learning would be to have a subject learn a schema type to some criterion. However, if the attitudinal stimuli are overlearned, any schema effect on later memory is apt to be minimal. It was precisely for this reason that subjects in the present research project were exposed to the attitude stimuli only once initially, in order to insure that there was later some uncertainty in their minds as to whether the target person had indeed made a given statement, therefore providing the opportunity for schematic processes to operate. In any case, there is no indication from the data that one schema type was better learned than another. A comparison of recognition scores for those liberal statements which were included in the liberal schema and those conservative statements which were included in the conservative schema reveals no difference. The

similarity in recognition for these types of statements accompanied by the significant results which support the schematic processing hypotheses indicates that a schema rather than a learning effect offers a better explanation of the data.

A second possible explanation for the pattern of results obtained in this project is that subjects may have been shifting their criterion for responding YES on the recognition test to a given statement independent of any change in memory. Although a signal detection analysis was initially considered as a means of testing the likelihood of such a possibility, it was deemed inappropriate because of the procedure which was used for initially presenting the attitude stimuli. All possible attitude statements served as signals during the first presentation. Either a YES or a NO was merely attached to each statement. Therefore, any test of a criterion shift which would involve the tabulation of false positives appeared unwise since the results to be analyzed were based on a procedure which was somewhat different from the procedure which is typically used for this type of analysis.

The effects which we obtained were based on a single dependent measure. Yet other types of measures are certainly available. For example, free recall measures may provide a useful means of assessing how attitudinal information is stored in memory. Reaction time measures may help to determine whether memory for old information is altered as new information becomes available or whether this inconsistency is resolved at the time of retrieval. Depending on the nature of the research hypotheses, certain methods and procedures may be more expedient than others. Statistical tools such as signal detection theory, cross-lagged panel correlations, and path analyses may be able to provide valuable insight

concerning the changes in memory which occur as a result of the sequential presentation of new information. If these types of tools are to be used effectively in research of this type, social psychologists must take care to familiarize themselves with the assumptions underlying these types of statistical analyses. If used appropriately, innovative techniques such as these should be invaluable in the future since undoubtedly research questions in the area of social cognition are likely to become more and more sophisticated.

It does appear that the information contained in a subsequent behavior can influence memory for schema content. However, this effect was limited to only the liberal schema type. A possible explanation for this apparent inconsistency is based on the possible influence of subjects' own self-schemas on their processing of the attitudinal information. Markus (1977) has observed that memory for traits consistent with a self-schema differs from memory for traits irrelevant to that schema. In the present research there is at least some indication that the liberal attitude schema was more correspondent with subjects' own self-schemas than the conservative attitude schema. First, subjects rated themselves toward the liberal end of the conservative-liberal dimension. Second, the target person described by the liberal attitude schema was better liked than the target person described by the conservative attitude schema. Perhaps this greater correspondence made specific liberal attitude statements more susceptible to schema effects. Furthermore, this greater correspondence may have made individuals more sensitive to the apparent consistency or lack of consistency between the subsequent behavior and that particular schema.

A prudent course of action in the future may be to attempt to control for the perceived similarity between the perceiver and target person by including this variable in the analysis as a covariate. On the other hand, it may be worthwhile to investigate this relationship in more detail in order to determine whether information about others which is relevant to the self-schema is somehow processed differently from information which is irrelevant, and whether subsequent information has a greater or lesser impact as a result.

It must be noted the influence of a behavior on memory for schema content appears to be unrelated to its diagnosticity. That is, if the behavior does exert an effect, it does so regardless of its implicational value. Thus it may be dangerous to assume that the immediate discounting of a given behavior means that the impression of the person will remain unchanged or that the content of the behavior will have no impact on the later construction or reconstruction of information about that person.

We can conclude that the overall theme of a given behavior can influence memory for specific content. Information consistent with the overall theme is more apt to be remembered as having been included in the behavior than information which is inconsistent with such a theme. It is important to recognize that the impressions people form of one another are often based on observations of a series of behaviors. Furthermore, this impression may change as more knowledge is acquired and there may be occasions where a series of unexpected behaviors may cause a perceiver to reassess the validity of the initially formed impression. Will a changing conception of another person be accompanied by poorer memory for behaviors which are consistent with the old image but inconsistent

with the new conception?

There is no evidence that the behavioral expectancy which is formed on the basis of an attitude schema influences the subsequent interpretation of behavioral information. It should be noted that the order of presentation of information was kept constant. The presentation of the attitude schema always preceded the presentation of the essay. The influence of the schema on memory for essay content might have been much greater had the sequence of presentation been reversed. Jones and Berglas (1976) point out that memory for a specific behavior will be more affected when related information is made available after rather than before the behavior. In our study any effect of schema information on memory for essay content may have been minimal since the attitudinal information always came before the essay. Therefore, subjects could carry a rather faithful memory of essay content into the recognition test. If the attitudinal information was allowed to intervene between the reading of the essay and the later recognition test for essay content, its effect on memory for specific essay content might be greater.

Directions for Future Research

The present research provides one example of how people's changing conceptions of one another can influence their reconstruction of previous events and behaviors. The outcome of such a process may have important implications on a number of different levels, ranging from close relationships between two people to relationships between nations. For example, the circumstances surrounding an overture of peace from one nation to another may be recalled quite differently depending on the subsequent improvement or deterioration of the relationship between the

two governments. The recipient of such an overture may be more apt to remember it as having been selfishly motivated if in the future the relationship between the two nations becomes strained. Such an interpretation of past events may only exacerbate the conflict. At a more interpersonal level, when a relationship between two individuals begins to deteriorate, previous behaviors that may have been innocuous at the time may be remembered as having had negative implications. Focus on such behaviors may only serve to further the dissolution of such a relationship. Individuals, groups, or governments may differ significantly in their recollection of past events, their accompanying interpretation of those events, and the significance attached to them. Such differences may lead to unfortunate consequences, particularly when the interacting parties are unaware that they exist.

The search for a coherent explanation of behavior may lead to a rather biased sampling of previous events. Such biases could have important interpersonal consequences and it is important that research in the future be directed toward a better understanding of their consequences. A single negative confrontation may soon be forgotten if it is not prototypic of the overall relationship. However, a series of such confrontations may eventually cause the interacting parties to reconsider the nature of their relationship. As the overall framework of a relationship begins to shift, recollection of prior behaviors may begin to change so that these behaviors now appear to provide evidence in support of this new perspective. Unfortunately, it may become difficult to alter this pattern of distorted thinking once it has begun. Interdisciplinary research is needed in order to understand the ebb and and flow of human relationships and to determine how the malleability of human memory contributes to this process.

TABLE 1

Recognition Scores for Attitude Statements as a Function of Target Person Description

Variable	Liberal Target Person	Conservative Target Person
Liberal statements not made by either target person ** (1st session)	4.40	2.69
Liberal statements not made by either target person ** (2nd session)	5.55	4.48
Liberal summary statement not made by target person ** (1st session)	4.06	2.08
Liberal summary statement not made by target person ** (2nd session)	4.84	2.48
Conservative statements not made by either target person ** (1st session)	2.58	3.88
Conservative statements not made by either target person ** (2nd session)	3.33	4.67
Conservative summary statement not made by target person ** (1st session)	2.16	3.46
Conservative summary statement not made by target person ** (2nd session)	2.59	3.88

** $p < .01$.

TABLE 2

Recognition Scores for Attitude Statements as a Function of Essay Direction

Variable	Pro-Marijuana Essay	Anti-Marijuana Essay
Liberal statements <u>not</u> made by liberal target person * (1st session)	3.79	3.31
Liberal statements <u>not</u> made by liberal target person * (2nd session)	4.60	4.07
Liberal statements made by liberal target person * (2nd session)	7.11	6.41

* $p < .05$.

TABLE 3

Recognition Scores for Essay Arguments as a Function of Essay Direction.

Variable	Pro-Marijuana Essay	Anti-Marijuana Essay
New pro-marijuana arguments not contained in either essay ** (1st session)	3.84	3.38
New pro-marijuana arguments not contained in either essay ** (2nd session)	5.59	3.36
New anti-marijuana arguments not contained in either essay * (1st session)	3.13	3.93
New anti-marijuana arguments not contained in either essay ** (2nd session)	4.22	5.85
Old pro-marijuana arguments contained in both essays ** (2nd session)	8.74	7.70
Old anti-marijuana arguments contained in both essays ** (2nd session)	6.33	7.45

** $p < .01$.

* $p < .05$.

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